Healthy living can affect youth in school

Capstone Project

Presented in Partial Fulfillment of the Requirements for

The Master of Education Degree in the

College of Education and Human Service Professions

By

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June 2017

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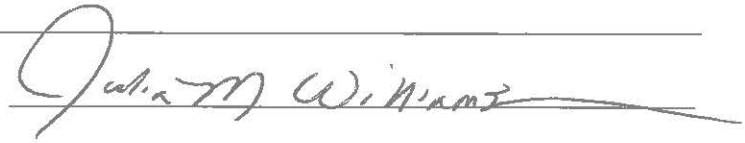
Graduate Program Director: 

Acknowledgements

I would like to thank my Adviser Dr. Diane Rauschenfels, Dr. Julia Williams and the faculty of the Master of Education Program at the University of Minnesota, Duluth for their commitment to excellence and development of the program and students.

Dedication

This thesis paper is dedicated to my husband, Charlie, for his support, commitment, and patience to continue to grow and be a source of pride and enlightenment.

Abstract

This study is a convergent mixed method study which looked at the effect of healthy living habits among students in the fifth grade and their academic performance. The study examined whether six weeks of healthy living instruction for 45 minutes impacted academic grades in science and changed students' behaviors. Data was collected from a control and experimental group in Southern Minnesota. The students in each group were observed prior to the healthy living instruction for two hours and after the six week instruction with a post observation that looked at the behavior of the students. Suggestions for future research include expanding the study to rural, suburban and inner city schools.

Table of Contents

List of Figures

Chapter One

Childhood obesity remains high in the United States. The Center for Disease Control and Prevention (CDC) reports that approximately 17% or 12.7 million of the children and adolescents are being affected. The CDC has noted that unhealthy behaviors are often established during childhood and continue into adulthood (CDC, 2014). The American society has promoted increased consumption of unhealthy foods and little to no physical activity. According to the CDC, "about 55 million children are enrolled in schools across the United States and many eat and drink meals and snacks there. Yet more than half of U.S. middle and high schools still offer sugary drinks and less healthy food for purchase" (CDC, 2014). Through an evaluation of California's statewide initiative of a healthy start where healthy service be provided for youth and families provided positive outcome in the elementary grade point averages and lowered the disciplinary action per month (Wagner & Gomby, 1996)

Purpose of the Study

The purpose of this study is to explore the effect of healthy living habits among students at the elementary level and their academic performance.

Background and Significance of the Study

In 2013, Minnesota's obesity rate was between 25% and 30% along with 22 other states (CDC, 2014). These statistics place Minnesota in the middle with there being a range of 15% to 35% or higher of obesity prevalence. This has become a growing problem across the United States. There is no easy solution to solve childhood obesity, but by educating youth at a young age and helping to influence their future food choices, parents, peers, and the media are social

influences the effect how the youth perceive food and in making the right choice (Lautenschlager & Smith, 2006). The Robert Wood Johnson Foundation (2010) began to promote healthy eating through local produce in Austin, Texas. The concept of the food coming from the farm directly to the school would not have an impact on the youth but the community as a whole. With the increase in local produce, there needed to be an increase in the knowledge of the food system where the youth involved consumed more fruits and vegetables (Robert Wood Johnson Foundation, 2010). When youth consume healthy food it affects their academic performance. Proper nutrition and physical activity can show improvement of the youth's academic achievements (grades and tests) and academic behavior (classroom attendance) and the youth's cognitive skills and attitudes (U.S. Department of Health and Human Services, 2010). Schools cannot be the only place the youth are exposed to healthy food choices. There needs to be support both at home and in the community. Johnson and Deshpande (2000) note that communities need to provide resources to individuals of the benefits of both healthy living and physical activity to help prevent not only childhood obesity but adult obesity as well. With communities and schools working together, a larger impact can take place in the youth's life. Students can be motivated both personally and socially by their own choices, beliefs, and the support they receive from family and friends (Kelly, Melnyk, Belyea, 2012). The United States Department of Health and Human Resources (2011) states that there are intermediate and long term results of healthy eating and physical activity which can include: control or eliminate obesity, lower metabolic syndrome, diabetes, and cardiovascular disease. Children can learn healthy living options and the importance of eating fruits and vegetables and be able to see the benefits of living a healthy life later in their life (Samuels, 2006).

Through research, the author hoped to inform schools that by providing students with healthy food options, the youth's academic grades will show improvements. Students show improvements in grade, behavior, and cognitive skills with healthy food choices.

Setting

The population of this study is an elementary school in Southern Minnesota. The focus of this study was on fifth grade students.

Assumptions

The research was motivated by the perception that healthy food and physical activity seem to improve youths' academic grades and behavior in the classroom. The researcher hopes that the results will encourage schools to look at ways to increase the nutrition knowledge and food choices within their school.

The researcher believes that the study of healthy living is beneficial for all students to learn and be exposed to healthy food choices. Youth are faced with schools not providing them with healthy food choices during lunch and exposing them to sugary beverage machines and snack machines with unhealthy food options.

Summary

In summary, this study collected data of youths' behavior and academics and summarized the findings of providing nutrition education. The researcher hoped to provide evidence of the effects of healthy living on youth. The results of this research address the impact of the students' behavioral and academic performance in the classroom.

Chapter Two

Healthy eating is an important factor in the promotion and maintenance of good health throughout all stages of life (World Health Organization, 2015). By focusing on youth in the school setting, implementation of healthy eating can take place. Childhood obesity is a public health concern for chronic diseases and self-esteem is one of the prominent components of mental health and personal development (Wang & Veugelers, 2008). Wang and Veugeler (2008) state that low self-esteem can affect social and cognitive development in children and can result in limited educational attainment and reduced prospects for good health. The healthy lifestyle that begins to take form in children can contribute to an enormous healthy benefit. Promotion of healthy eating should be an objective for schools as there are notable benefits for youth.

Guidelines and influences of healthy living

Youth are influenced in different ways and from a variety of people. To effectively promote healthy living, youth need strong role models to encourage the idea of eating healthy. Lautenschlager and Smith (2006) explored the social influences of parents, peers, and social media and their positive and negative role they can play on impacting eating healthy in youth. Those influences can have a negative effect on the nutrition knowledge of foods.

Johnson and Deshpande (2000) discussed the importance of the community surrounding youth. The community should provide resources to all individuals within the community along with a networking system for youth, adults, and elderly. In order for the networking system and community involvement to be successful, the message of healthy eating needs to be consistent between schools, families, and the communities (Johnson & Deshpande, 2000). To help create a consistent message, guidelines and standards should be formed. Wiecha, Hall, Gannett, and

Roth (2010) note the nutrition guidelines are set by the USDA and the states. Further discussion takes place on organization standards and how they differ and how to uniform them for a consistent message. The United States Department of Health and Human Services (2011) states the following as five guidelines to promote healthy eating and physical activity:

> "1) develop, implement, and evaluate eating and physical activity, 2) establish school environments that support healthy eating and physical activity, 3) provide a quality school meal program to have appealing but healthy options, 4) implement a comprehensive physical activity program with quality education and 5) implement health education for knowledge and skills" (pg 13-33).

The Pathways study conducted in 1990, provided children with healthy eating and physical activity lessons, taught food service workers how to purchase and prepare lower fat school meals, and ensured a minimum of 30 minutes of recess each week. Families received informational packages and Family Fun Nights were held to help promote and focus on healthy living (Samuels, 2006). Samuels (2006) says that the researchers found that students had more knowledge of healthy food and tended to eat less fat. Samuels (2006) notes that if children can learn healthy living options such as the importance of exercising and eating fruits and vegetables the results of these efforts can be measured later in their lives.

Asian cultural perspective of healthy living

Muto and Nakahara (2011) provide information on the Asian perspective of health promotion and education being community based research, health communication, and healthy education projects. The evidence they provide on health education can help to prevent obesity, depression and stress related conditions. Location is a key component to ensure health

promotion is effective. Healthy eating is promoted in schools and in the workplace. Activities and outcomes are seen within the community notes Muto and Nakahara (2011). History of what was taking place in the country helped to create a new approach to health promotion. By learning about other countries' health promotions, models can be created to relate to the current health promotions or provide new opportunities to explore.

Healthy living interventions

To begin to promote healthy eating in schools interventions or small steps need to take place. This helps to see what form health education can take to have effect on youth. Weaver and Jackson (2010) created a curriculum to increase physical activity, decrease or prevent tobacco, and increase healthy eating practices. The demographics for this curriculum were 9-13 year old youth. There was a pre and post test to measure the youths' physical activity and dietary practices. According to Weaver and Jackson's (2010) results, physical activity increased over the course of teaching the curriculum.

Another incentive program was done by Cuffe, Harbaugh, Lindo, Musto, and Waddell (2011) on increasing physical activity among children and providing incentives to youth who rode a bike or walked to school. The key focus was to look at the obesity rates among children of elementary age. Youth who rode their bike or walked to school were given a prize at the end of each week.

Moreno, Pigeot, and Ahrens (2011) took a different approach to an intervention of eating healthy. They looked at the following to begin with: socioeconomic, lifestyle differences, age of groups, sex groups, and ethnic racial groups. This information helped to provide the area of obesity and where to begin the work. Morent et al. (2011) did not feel that the whole group or

class should be addressed but begin to conduct interventions at an individual level. These interventions were three different approaches to help promote healthy eating among youth.

Academic outcomes in youth through healthy eating

Healthy living is important for school districts to understand especially the academic outcomes that it can provide youth. Wagner and Gomby (1996) evaluated California's Healthy Start statewide initiative between methodological rigor and the realities of evaluating large public service efforts. They explored the "who and what" which included schools, adult education, school performance, basic health needs and elementary schools. Wagner and Gomby (1996) used an experimental design to not test a single intervention but to further develop the knowledge about the implementation and outcomes of alternative interventions that are under the rubric of school-linked services. Wagner and Gombay (1996) wrote the following:

> "The partnership has three goals; 1) providing state and local policy, evaluation, and program support for Senate Bill 620…, 2) building a broader statewide comprehensive school-linked service system which cuts across a range of disciplines and agencies, integrating state and local resources to avoid conflicting regulations, fragmentation, duplication and inconsistent service delivery and 3) developing mechanisms for refinancing these services through access to Medi-Cal and other funding sources to ensure the availability of healthy and social services for children and their families in all school districts in the state" (pg. 52-53).

Early outcomes reported were that grade point averages improved, average grades in elementary levels increased and disciplinary action per month declined by 32% (Wagner & Gomby, 1996).

Improving youth's health is important to help prevent obesity, but underweight youth need to be educated as well. Lu, Chou, and Lin (2014) looked into the outcomes of students who were overweight and underweight as both caused academic concerns. Overweight youth experienced a lower self-esteem, lower concentration level, and can pose health problems that cause lower cognitive performance. Underweight youth had more sick days where they had to miss classes and had lower academic performance. Youth who were healthy and were educated on healthy living were able to improve their academic performance (Lu, Chou, Lin, 2014).

Academic performance is important for both the school and youth. Kelly, Melnyk, and Belyea (2012) studied the motivation and behavioral skills to help youth improve their health. Kelly, Melnyk and Belyea (2012) state the following, "intrapersonal factors related to physical activity and eating fruits and vegetables include knowledge (information), personal motivation (intentions-were measured as choices in this study, self-efficacy was -measured as beliefs, and barriers-measured as perceived difficulty), and cognitive-behavioral skills" (pg. 148). Youth need personal choices and believe in themselves along with support from family and friends. Skills are developed to perform physical activity and learn to eat fruit and vegetables for a healthier life. Including cognitive-behavioral skills into programs, will be an important component and a key factor to enhance physical activity and fruit and vegetable intake in adolescence (Kelly, Melnyk & Belyea, 2012). The United States Department of Health and Human Services states that youth that participate in physical activity can enhance not only their academic achievement but cognitive skills and attitude which can include; concentration, memory, self-esteem and verbal skills (2010).

Healthy living studies and outcomes

The Robert Wood Foundation (2010) helped to promote healthy living among people by increasing their knowledge of the food system, inform them on assessing local produce, and the importance of the consumption of fruits and vegetables. The HEALTHY experience worked on improving the quality of food and beverages being served in schools (Mobley et al, 2011). The experience made changes in breakfast, lunch and a la carte choices by incorporating reduce fat items, increase of fruits and vegetables and eliminate higher fat milk and beverages that add sugar.

Bogart, Elliott, Uyeda, Hawes-Dawson, Klein, and Schuster (2011) provided a five week study with adolescents aimed at preventing obesity by eating healthier foods in the school cafeteria and at home. Peer advocates were asked to help encourage and promote eating healthier to other students. The peer advocates benefited more compared to the other students in the study but overall there was a decrease in sugared beverage consumed by youth.

Schagen (2006) states a school that offered a free piece of fruit or vegetable to youth ages 4-6 each day provided a positive result for the youth. By offering healthy food, children were able to try different types of vegetables and fruits they may not have the opportunity to try elsewhere. This program showed that girls ate more fruit than boys and more likely to achieve the five servings a day (Schagen, 2006).

The aid of Karasimopoulou, Derri, and Zervoudaki's (2012) study was to examine the effect of children's perceptions about certain dimensions of the quality of health. Youth age 10-12 from 12 different schools for a total of 286 youth were broken into an experimental group of 128 and control group of 158 to determine if health education would impact their perception of the quality of life (Karasimopoulou,et al., 2012). The design of the research study included a

pre and post test for both the experimental and control groups to obtain the perception of the following quality of life components: physical wellness, psychological well-being, mood and feelings, self-perception, leisure-autonomy, family life, financial resources, friends, school, and social acceptance (Karasimopoulou, et al., 2012). The experimental group received programming and activities and aim to develop student's personal and social skills 45 minutes each week for a total of 23 weeks. The experimental group showed improvement in the areas of family life, physical well being, financial resources, school life, social acceptance and friends (Karasimopoulou, et al., 2012).

Summary

Healthy eating and living can provide youth with long lasting personal habits. By exposing youth to healthy education will help them on their academic performance in the school along with behavioral skills. Positive interventions and studies have been conducted to provide information on the impact healthy eating and physical activity can provide youth. Establishing a set of guidelines might help to ensure that everyone is consistent with encouraging healthy eating. If we can educate the adults to learn positive eating and living habits, youth will have positive role models and visually see the effect of what eating healthy looks like.

Chapter Three

Methodology

The purpose of this convergent mixed methods study was to explore the effect of healthy living habits among students at the elementary level and their academic performance. First, this chapter will describe the research design in detail. Secondly, the setting and participants will be defined. Next, the measure of how the study will be conducted will be illustrated. Finally, an analysis of how the data were gathered and collected will be discussed. The chapter will conclude with a summary.

Research Design

A convergent design was used to conduct this mixed methods study. Creswell (2015) states this type of design is used to simultaneously collect both quantitative and qualitative data to compare and merge the results. The following research questions were addressed:

1. Does providing students with healthy food options help increase academic grades?
2. Are students' behaviors affected by the food choices that they make in the school/classroom setting?

The quantitative and qualitative data was analyzed separately but then compared to interpret if the results support or diverge for each of the research questions (Creswell, 2015).

Setting and Participants

The participants of the study included a non-random sample of two classrooms of 5th grade students at a public school. This particular school was selected as it serves a large area of the county's youth. The students in one 5th grade classroom (n=10) served as the comparison group where the other 5th grade classroom (n=14) served as the experimental group. The classroom that was included in the study was comprised of 9 females and 5 males. The schools

location was in the southern part of Minnesota. The public school was one of five in the county. A total of 625 students attended the public school (K-12). The grade level of the participants was chosen because according to the National Association for the Education of Young Children (NAEYC) (2015), earlier experiences with healthy eating habits can strongly impact students' lifestyle in the future. Fifth grade was chosen as the youth are able to vocalize to their parents on the importance of selecting and choosing healthy food options to eat at home.

Measures

The NAEYC (2015) states that students should be involved with the actual food and not simply answer questions in workbooks. By having hands-on nutrition activities developed healthy eating habits. Healthy living curriculum, *Go Wild*, used by the University of Minnesota Nutrition Educators was used to educate the students in the one 5th grade classroom. The hands-on approach allowed students to create the healthy snacks by reading the recipe, measuring the ingredients, and tasting the final product. Students in the 5th grade classroom received forty five minutes of healthy living instruction once a week for six weeks. Students during those six weeks experienced hands-on application with healthy foods, some they have eaten before and others not eaten before. Students' academic grades in science were collected from the end of second quarter and from the end of third quarter. Students' behavior in the comparison and experimental groups were observed for two hours prior to instruction of curriculum. Upon completion of the six weeks of healthy living instruction, the academic grades of all student participants in both classrooms were recorded. After the six weeks the students' behavior in both classrooms were observed and recorded for the final time. One 5th grade classroom received no healthy living instruction and served as the comparison group. While the other 5th grade classroom, received

healthy living instruction as the experimental group. The week after the study was completed; observation of students' behavior in both classrooms was recorded. The observation was for two hours in each classroom and focused on tiredness, attentiveness to classroom instruction, and hyperactivity. Students' academic grades were recorded in the subject of science in both 5th grade classrooms.

Data Gathering and Analysis

The data of the students' academic grades was recorded by assigning students a number. The academic grades were recorded prior to the healthy living instruction, and then the final academic grade was recorded after the six weeks. Students' had two grades recorded pre instruction and post instruction that were recorded on a spreadsheet. Each 5th grade class was recorded on a separate spreadsheet to compare and contrast the academic grades of the students'. The two different grades for each student were converted to a percentage where the difference was recorded. The pre and post grade percentages were averaged for each classroom to compute to see if the healthy living education made an impact.

Behavior observation was taken separately in each classroom of all the students. The comparison classroom of 5th grade students was labeled A and experimental classroom was labeled B. Behavior observations were made per student in each classroom by assigning them a number based on the class roster. After that was completed, they were be converted into male 1A, female 2A, female 3A, etc. the same was done in the other classroom except with the letter B. The behaviors were recorded in a table broken into three columns and a row for each student. The first column was the list of students, second column was the pre behavior observations, and the last column was the post behavior observation. The pre and post behavior observations were

compared to see if there were notable differences in the students behaviors based on the healthy living education.

The quantitative study and qualitative study took place simultaneously with the results of these two studies gathered separately. The results were then compared and merged to help interpret and explain the results of the healthy living educational curriculum that was provided.

Summary

The convergent mixed methods design process to gather the results for the impact of healthy living curriculum on 5th grade students provided data that helped answer the research questions in regards to the students' academic grades and physical behavior. The ability to compare the results from the quantitative and qualitative studies the analyses of each of these determined if the results yield similar or dissimilar results (Creswell, 2015).

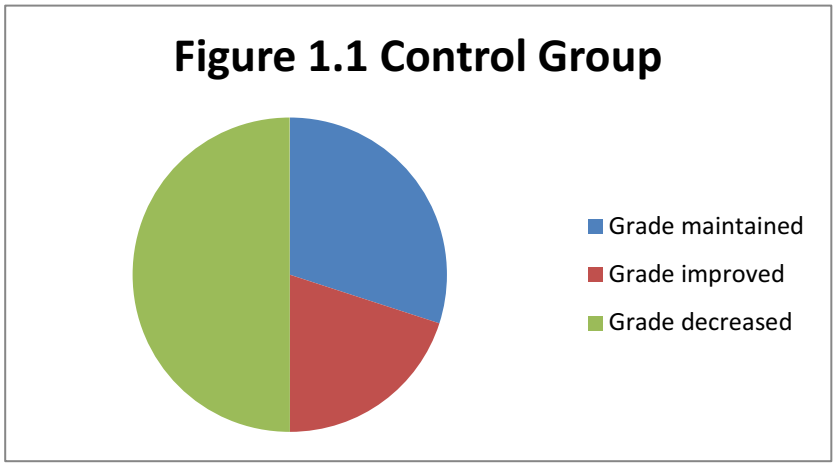
Chapter Four

Results and Discussion

Students in the 5th grade were asked to participate in this study to see if healthy living affected their academic grades and/or behavior within the classroom. One group served as the comparison where the other served as the experimental group and received the healthy living instruction. The first part of this chapter will describe the results of the academic grades and analysis the behavior of the two observations. The second part will focus on the discussion of the findings.

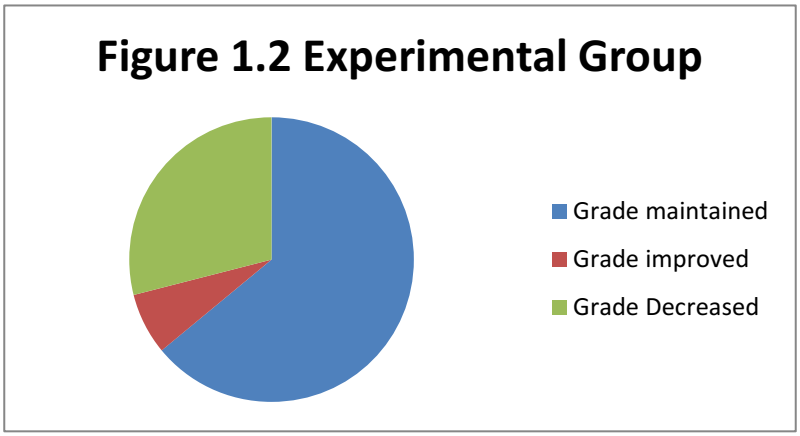
Results

A question that was proposed earlier was in regards to see if healthy living instruction improved students' academic grades. Over the course of eight weeks, with two weeks being observations and six weeks of healthy living instruction for thirty minutes, the students' academic grades in science were collected prior and after and key findings were found. The grading scale used was A-F with the ability to receive a plus or minus within each letter. The control group did not receive the healthy living instruction to experience new healthy food options. There were 10 students in the comparison group from which data was collected. Figure 1.1 provides the ability to see those 5 students or 50% of the students grades decreased



from week one to week eight. 20% of the students improved their grades within the same time frame and 30% maintained the same grade during the course of eight weeks.

The experimental group received forty five minutes of healthy living instruction where students' had the opportunity to try new types of healthy food options for six weeks. After the six weeks, Figure 1.2 shows the results of academic grades that were collected prior and after the six weeks. There were 14 youth within the experimental group where nine students or 64% maintained their academic grades. One or 7% improved their academic grade. That left only four students or 29% percent with a decrease in grades.



When comparing the comparison and experimental groups' grades, it shows that 71% of students in the experimental group improved or maintained their grades where only 50% of students improved or maintained their grades in the control group.

Another question was if the healthy living instruction affected the behavior of the students within the classroom. During the two observations, at week one and week eight, students were observed on their tiredness, attentiveness to classroom instructions and hyperactivity. Each observation for the control and experimental group was for two hours.

The comparison group consisted of a total of ten youth but eight youths behavior were used to determine a change as two students were absent for the first observation and provided no basis to witness a positive or negative change. Of the eight that were observed, two youth showed a positive change within their behavior. Both students during the first observation were tired as their elbows were on the tables with their head in their hands and yawning. The second observation the same students were attentive and focused on the work and lesson that was taking place. Four students showed no change within their behavior as they were attentive and focused during the pre and post observation. They were asking questions, raising their hands to answer questions, and work diligently on completing the task at hand. The remaining two students showed a negative change within their behavior from pre observation to post observation. During the pre observation, the students' behavior showed them attentive and focused on the learning taking place within the classroom. The post observation that took place in week eight showed those two students being disruptive to others at their tables, talking out of turn, walking around the classroom, and no focus on the task at hand.

When looking at the experimental group's behavior from the pre observation to post observation, seven of the fourteen students showed improvements within their behavior. A student was excluded from the behavior observation as they were absent for the post observation which did not allow to the pre observation to be compared. The remaining six students maintained a consistent behavior pattern during both observation time frames.

Four of the students showed signs of tiredness during the pre observation as they were yawning continuously during the class time and placed their head in their hands. During the post observation those students were focused on the class lesson as they raised their hands to ask or

answer questions the teacher proposed. They were diligent to complete the task that was assigned to them.

Three students were observed to fidget within their seats during the pre observation. These students were not as focused on the learning aspect as they were standing by their seats then sat back down or walking constantly to throw items away. Their behavior changed in a positive manner in the post observation as they were focused and attentive to the class content as they were raising their hands to answer questions that the teacher asked.

The students that did not show a change within their behavior did show positive behaviors during the pre observation. Six students were attentive and focused during the lesson during both observation time frames. They were willing to ask questions if they were unable to understand for clarity or to answer questions that were asked from teacher or other students.

Discussion

Wagner and Gomby (1996) explored with an experimental design to develop knowledge about outcomes of a healthy living initiative. The outcomes of their studied showed that the average grades in the elementary school improved. The results from the study conducted showed that the students' that received healthy living instruction showed ten of the fourteen students maintained or improved their academic grades over the course of eight weeks. These results supported what the United States Department of Health and Human Services (2010) said about how healthy living can enhance academic achievement which can impact cognitive skills and attitude as the students within the experimental group as 50% improved their behavior and 43% had consistent behavior from the pre and post observation. The remaining 7% was abstained from the data as the students were absent during one of the observation and was unable to

compare the behavior. Through these findings, youth who were healthy and were educated on healthy living were able to improve their academic performance (Lu, Chou, & Lin, 2014).

The youth that did not receive the healthy living education had 50% of students decrease their academic performance which corresponds to 20% of the students that showed a positive behavior in the pre observation but expressed to be not focused or attentive in the post observation. These results illustrate the importance of healthy living education among students within the school setting as Samuels (2006) found that if students had more knowledge of healthy food tend to eat less fat and recognize the importance of healthy living for the benefits now and later in life.

Summary

Childhood obesity is a growing problem across the United States. By focusing on the school setting, awareness can be brought to students' informing them of a healthy lifestyle. Through small steps a change can be to create an effect on students. Through this study the results reinforced that a positive change in attitude within the experimental group in the students that maintained and improved their academic grade corresponded with an improvement or consistent behavior within the classroom.

Chapter Five

Summary and Conclusions

As it states in the introduction, childhood obesity remains high in the Unites States were 17% or 12.7 million of the children and adolescents are affected (CDC, 2014). With those statistics Minnesota was in the range of 15% to 35% or higher of obesity prevalence (CDC, 2014). There is no easy solution to solve the obesity problem but through this study a group of students were educated on healthy living that they can implement into their lives to decrease the obesity statistics over a course of time. The Center for Disease control and Prevention states that 55 million children eat their meals and drinks in a school setting where half of the schools are offering sugary drinks and less healthy snack options (2014).

The purpose of the study was to explore the effect of healthy living habits among students within the fifth grade on their academic performance. The students in the experimental group received instruction on eating healthy food over a course of six weeks to see if it impacted their academic grades and to see if there behavior improved in a positive manner. The results are guided by two research questions.

1. Does providing students with healthy food options help increase academic grades?
2. Are students' behaviors affected by the food choices that they make in the school/classroom setting?

Educational Implications

With the knowledge that healthy living within the school setting can impact the academic performance of students, potential behavior issues within the classroom could be resolved. The research was conducted in a school system that is majority white and middle income families

with two parents. The results may vary in school settings in a rural, suburban and inner city school systems. Teaching healthy living to students is important and can have an impact but a similar message needs to be conveyed to the parents or guardians of the students. With the students and parents/guardians receiving a similar message, they can make a better informed decision in terms of determining foods that are purchased or ordered for the family.

Recommendations for Future Research

This study sets the stage for new and exciting research topics. The focus of this research has been on healthy living and how it affects academic performance and behavior within the school setting. With this study, the expanding with the same students to see if their academic grades across all subjects improved, maintained, or decreased. In addition a question that arose during the process of the study was the following: what about comparing different school settings that are in the rural, suburban, and inner city to see the differences and similarities? This question and potential answers could provide additional findings to see if they are consistent or vary among the school settings. These might be important areas to be studied to continue to help decrease the childhood obesity in the United States.

Limitations

The findings of this study are correlational and not causal as the improvement of academic grades and classroom behavior cannot be directly linked to the healthy curriculum. Many different variables can attribute to the students grades and behavior over the course of eight weeks such as day of the week observed, topic being studied, interaction among peers, teaching style, and much more. The observation of the students' behavior was conducted by the researcher. The potential bias is the researcher had knowledge of the two different groups,

comparison and experimental. The researcher conducted the observations with no intended bias but observed the students' within their classroom environment as they behaved during that class period.

Summary

This research shows that as of right now, healthy living has an impact on students' academic performance and behavior, however the results were not as definite has expected. The curriculum used provided students with the opportunity to explore with new and different fruits and vegetables and how to incorporate them into a healthy snack before, during or after school.

With about 12.7 million children and adolescents are affected by childhood obesity, education about healthy living needs to start in the school with the proper education and role models. Schools across the nation are looking to source their food locally and provide healthier options for students for breakfast and lunch during the school year. Childhood obesity is a serious problem but can change by educating the youth starting at the elementary level to help influence them to make healthier food choices. Not only to youth struggle with obesity but adults as well. Adults have a strong role and influence on the choices of what children consume. A united front between the students and adults can become role models and provide the resources needed to help improve students' academic performance and behavior and impact their future lives.

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Appendices

Control Group				
	Beginning grades	**End grades**	**Pre observation**	**Post observation**
1A	A	B	absent	distracted, unfocused, talkative & distruptive to others
2A	A	A	attentive - focused - asked questions	attentive - focused, quiet, busy doing work
3A	A	A-	energetic - focused - answer questions	jittery and antsy in desk
4A	A	A	energetic to raise hand and answer questions	focused but talkative during class and distruptive to others
5A	B+	A	tired - elbows on desk with hands on their head	attentive and focused and quiet
6A	A-	A	energetic	energetic- stands & dance/sings distruptive to others
7A	A-	B+	attentive & focused	attentive & focused on completing task
8A	A	B+	focused on completing work	attentive and focused
9A	A	A	bored - moves around classroom during lesson. Tired hands on elbows on table and head	attentive and focused
10A	A	A-	absent	focused, helpful & asked questions

Appendix I

Experimental Group				
	Beginning grades	**End grades**	**Pre observation**	**Post observation**
1B	A	A-	antsy, fidgety & stands and sits during class period	stands to work but attentive and focused on task
2B	A	B+	antsy & figetey and moves aroudn the room during lessons	focused & energetic to asnwer questions & waves hand and only walks around during breaks
3B	A	A	talks amongst table mates but focused on work	attentive & focused
4B	A	A	tired & yawning	attentive and focused on completeting work
5B	B+	B+	attentive to lesson & focused	focused and attentive to complete work
6B	A	A	attentive focused	raised hand to answer questions - stood & worked
7B	A	A	yawning & tired & distrubtive to others around	focused & attentive to task, sat quietly when waiting
8B	B	A	antsy - consistently moves around	focused on class content - raises hand and answers questions

9B	A	A-	attentive	focused but talked during breaks. Stands and works halfway through
10B	A-	B	yawning & tired	diligent on task, focused/ attentive
11B	A	A	attentive on lesson and focused	focused - raised hand to answer question
12B	A	A	fidgety, antsy, tired as hands rested on his head	absent
13B	A	A	attentive & focused	attentive & focused, stands while he works
14	A	A	tired - hands rested on her head	not focused on class as he was reading during class time but completed work - where he was focused

Appendix II

UNIVERSITY OF MINNESOTA

Twin Cities Campus | Human Research Protection Program, Office of the Vice President for Research | D528 Mayo Memorial Building, 420 Delaware Street S.E., MMC 820, Minneapolis, MN 55455

Office: 612-626-5654
Fax: 612-626-6061
E-mail: irb@umn.edu or ihc@umn.edu
Website: http://research.umn.edu/subjects/

December 14, 2015

Katie A. Johnson
Nicollet County Government Center
501 South Minnesota Avenue
Saint Peter, MN 56082-2533

RE: Healthy living can affect youth in school

IRB Code Number: **1511P80022**

Dear Katie A. Johnson:

The Institutional Review Board (IRB) received your response to its stipulations. Since this information satisfies the federal criteria for approval at 45 CFR 46.111 and the requirements set by the IRB, final approval for the project is noted in our files. Upon receipt of this letter, you may begin your research.

IRB approval of this study includes the consent form received November 30, 2015, and the assent form received November 30, 2015.

The IRB would like to stress that subjects who go through the consent process are considered enrolled participants and are counted toward the total number of subjects, even if they have no further participation in the study. Please keep this in mind when calculating the number of subjects you request. This study is currently approved for 33 subjects. If you desire an increase in the number of approved subjects, you will need to make a formal request to the IRB.

On November 11, 2015, the IRB approved the referenced study through November 9, 2016, inclusive.

The Assurance of Compliance number is FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003). Research projects are subject to continuing review and renewal. You will receive a report form two months before the expiration date. If you would like us to send certification of approval to a funding agency, please tell us the name and address of your contact person at the agency.

As Principal Investigator of this project, you are required by federal regulations to inform the IRB of any proposed changes in your research that will affect human subjects. Changes should

not be initiated until written IRB approval is received. Unanticipated problems or serious unexpected adverse events should be reported to the IRB as they occur. Notify the IRB when you intend to close this study by submitting the Study Inactivation Request Form.

The IRB wishes you success with this research. If you have questions, please call the IRB office at 612-626-5654.

Sincerely,

Clinton Dietrich [redacted]

Clinton Dietrich, MA
Research Compliance Supervisor

CC: Diane Rauschenfels

Appendix III

Any pertinent additional analysis if applicable